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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/643,085	08/19/2003	Ricardo San Martin	LOPEZ-4	3063

23599 7590 03/19/2007  
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EXAMINER
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WILKINS III, HARRY D

ART UNIT	PAPER NUMBER
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1742

SHORTENED STATUTORY PERIOD OF RESPONSE	MAIL DATE	DELIVERY MODE
3 MONTHS	03/19/2007	PAPER

**Please find below and/or attached an Office communication concerning this application or proceeding.**

If NO period for reply is specified above, the maximum statutory period will apply and will expire 6 MONTHS from the mailing date of this communication.

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<b>Office Action Summary</b>	<b>Application No.</b> 10/643,085	<b>Applicant(s)</b> SAN MARTIN ET AL.	
	<b>Examiner</b> Harry D. Wilkins, III	<b>Art Unit</b> 1742	

**-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --**

**Period for Reply**

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

**Status**

- 1) ☒ Responsive to communication(s) filed on 02 February 2007.
- 2a) ☒ This action is **FINAL**.                      2b) ☐ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

**Disposition of Claims**

- 4) ☒ Claim(s) 1-7 is/are pending in the application.  
     4a) Of the above claim(s) \_\_\_\_\_ is/are withdrawn from consideration.
- 5) ☐ Claim(s) \_\_\_\_\_ is/are allowed.
- 6) ☒ Claim(s) 1-7 is/are rejected.
- 7) ☐ Claim(s) \_\_\_\_\_ is/are objected to.
- 8) ☐ Claim(s) \_\_\_\_\_ are subject to restriction and/or election requirement.

**Application Papers**

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 19 February 2003 is/are: a) ☒ accepted or b) ☐ objected to by the Examiner.  
     Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).  
     Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

**Priority under 35 U.S.C. § 119**

- 12) ☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).  
     a) ☒ All    b) ☐ Some \*    c) ☐ None of:
1. ☒ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_\_.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

\* See the attached detailed Office action for a list of the certified copies not received.

**Attachment(s)**

- |  |   |
|--|---|
| 1) <input type="checkbox"/> Notice of References Cited (PTO-892)   | 4) <input type="checkbox"/> Interview Summary (PTO-413)<br>Paper No(s)/Mail Date. _____ |
| 2) <input type="checkbox"/> Notice of Draftperson's Patent Drawing Review (PTO-948)                        | 5) <input type="checkbox"/> Notice of Informal Patent Application                       |
| 3) <input type="checkbox"/> Information Disclosure Statement(s) (PTO/SB/08)<br>Paper No(s)/Mail Date _____ | 6) <input type="checkbox"/> Other: _____  |

## DETAILED ACTION

### ***Claim Rejections - 35 USC § 102***

1. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

2. Claims 1-3 and 5-7 are rejected under 35 U.S.C. 102(b) as being clearly anticipated by “El quillay controla los tóxicos” with evidence from Nord et al (for claims 3 and 7 only).

“El quillay controla los tóxicos” is a newspaper article from the newspaper *El Mercurio* from Chile. The article is a disclosure, apparently by Applicant (note “San Martin” (first named inventor) appears in the last paragraph), which discloses the use of extracts of the “tree of quillay” (i.e.-*Quillaja saponaria*). Particularly of note is that saponinas (saponins) are explicitly stated as being resistant to conditions in the copper electrowinning solutions, and are useful for reducing the problem of “toxic steam”, i.e.- acid misting, in the copper electrowinning processes.

The publication date of this article is the 14<sup>th</sup> of December 2001, which is more than a year prior to the date of application for patent in the United States (19<sup>th</sup> of August 2003). Therefore, the news article represents a statutory bar to the granting of a patent on this subject matter.

Regarding claim 2, the article explicitly states that the extract included saponins.

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Regarding claims 3 and 7, the article fails to teach the structure of the saponins present in the abstract. However, Nord et al teach (see pages 199-200) that the extract from the bark of the *Quillaja saponaria* Molina tree included a heterogeneous mixture of triterpenoid-based saponins, having a triterpenic core (see figure 1) with sugar chains ( $R^1$  and  $R^2$ ) at the 3 and 28 positions. Therefore, the extract disclosed by the article is considered to inherently possess the claimed composition/structure. The structure of claim 7 is identical to the structure disclosed by Nord et al in figure 1, with a few exceptions.  $R^1$  of Nord et al corresponds to the trisaccharide present at the left hand side of the structure. However, Nord et al teach (see caption of figure 1) that  $R^1$  could be a branched trisaccharide.  $R^4$  of claim 7, corresponds to  $R^4$  of Nord et al.  $R^4$  of claim 7 corresponds to  $R^3$  of Nord et al. The  $R^2$  structure of Nord et al, an oligosaccharide, corresponds to the structure of the molecule below the "X" on the lower right portion of the structure in claim 7.

Regarding claims 5 and 6, the saponin extract of this articles is considered to inherently possess the same properties since it had the same composition.

### ***Claim Rejections - 35 USC § 103***

3. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

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4. Claims 1-7 are rejected under 35 U.S.C. 103(a) as being unpatentable over Bultman et al (US 4,484,990) in view of Niwase (JP 09-227345) with support from MacKinnon et al and Nord et al (for claims 3 and 7 only).

Bultman et al teach (see abstract) a method for inhibiting acid misting in copper electrowinning comprising adding a surfactant to the electrolyte from which copper is electrowon. The surfactant acts to create a foam thereby preventing the bubbles formed at the anode from forming a mist which caused a hazardous work environment.

Bultman et al fail to teach that the surfactant added was a soluble surfactant comprising an extract from the *Quillaja saponaria* Molina tree.

However, Niwase teaches (see English abstract) that extracts from the *Quillaja saponaria* Molina tree had excellent surfactant properties.

Therefore, it would have been obvious to one of ordinary skill in the art to have used the surfactant extract from the *Quillaja saponaria* Molina tree as suggested by Niwase in the copper electrowinning electrolyte of Bultman et al because Niwase teaches that the extracts had excellent surfactant properties.

Niwase fails to teach using a refined extract. However, as the pure extract of the tree would have contained a number of other ingredients, it would have been obvious to one of ordinary skill in the art to have refined the extract to remove unnecessary components and to have concentrated the saponin glycosides.

Additionally, MacKinnon et al teach (see page 955) that Saponins were known to be useful as surfactants for reducing acid misting in zinc electrowinning. Zinc electrowinning utilized similar conditions as copper electrowinning, particularly sulfuric

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acid concentration and elevated temperatures. Thus, MacKinnon et al support the conclusion that steroid/triterpenoid glycoside compounds, i.e.-saponins, were suitable for use in acidic metal electrowinning processes. Therefore, one of ordinary skill in the art would have had a reasonable expectation of successfully applying the saponin surfactant of Niwase to the copper electrowinning process of Bultman et al.

Regarding claim 2, Niwase teaches (see English abstract) that the extract was composed of a triterpenoid-based saponin.

Regarding claim 3, Niwase fails to teach that structure of the triterpenoid-based saponin. However, Nord et al teach (see pages 199-200) that the extract from the bark of the *Quillaja saponaria* Molina tree included a heterogeneous mixture of triterpenoid-based saponins, having a triterpenic core (see figure 1) with sugar chains ( $R^1$  and  $R^2$ ) at the 3 and 28 positions. Therefore, the extract taught by Niwase is considered to inherently possess the claimed composition/structure.

Regarding claims 4-6, Bultman et al teach (see col. 9, lines 45-58) using surfactant concentrations of 1-200 ppm. MacKinnon et al teach (see pages 956-957 and figure 1) using Saponin concentration of 20-40 mg/L (approximately 20-40 ppm since one liter of water weighs about 1 kg). Therefore, it would have been obvious to one of ordinary skill in the art to have used similar concentrations with the surfactant of Niwase. The surfactant is considered to inherently possess the same properties since it had the same composition and would have been used in the same concentration range.

Regarding claim 7, the structure of claim 7 is identical to the structure disclosed by Nord et al in figure 1, with a few exceptions.  $R^1$  of Nord et al corresponds to the

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trisaccharide present at the left hand side of the structure. However, Nord et al teach (see caption of figure 1) that  $R^1$  could be a branched trisaccharide.  $R^4$  of claim 7, corresponds to  $R^4$  of Nord et al.  $R^4$  of claim 7 corresponds to  $R^3$  of Nord et al. The  $R^2$  structure of Nord et al, an oligosaccharide, corresponds to the structure of the molecule below the "X" on the lower right portion of the structure in claim 7.

### ***Response to Arguments***

5. Applicant's arguments filed 2 February 2007 have been fully considered but they are not persuasive. Applicant has argued that:

- a. "El quillay controla los toxicos" is not enabling, and therefore, cannot be used to reject the claims.

In response, the Examiner disagrees. The article states that "the addition of surfactants, synthetic compounds with actions similar to quillay, is an efficient form to reduce [the acid fog or toxic steam] problem". Based on the ordinary skill in the art, evidenced by Bultman et al, Young et al, MacKinnon, etc., the disclosure of "El quillay controla los toxicos" would have been considered enabling to the extent that one of ordinary skill in the art would have found the article to clearly teach using the extract from the *Quillaja saponaria* tree for inhibiting or suppressing acid mist in a copper electrowinning method, and a worker of ordinary skill in the art of copper electrowinning would have been more than capable of determining suitable surfactant concentrations.

- b. There is not a reasonable expectation of successfully using the surfactant disclosed by Niwase in the copper electrowinning process of Bultman et al.

In response, the ordinary skill in the art of copper electrowinning involved a fairly advanced knowledge of chemistry. Given that, and the disclosures of Bultman et al and Niwase and, in particular, the teachings of MacKinnon et al described above, one of ordinary skill in the art would have had a reasonable expectation of successfully using the saponin-based surfactant of Niwase in place of the fluoroaliphatic surfactant of Bultman et al. Further, the prior art is replete with examples of surfactants that are used in both shampoos and to improve electrowinning characteristics. Similar to the fluoroaliphatic surfactant of Bultman et al, Pavlik et al disclose using fluoroaliphatic surfactants in shampoos. Young et al teach using guar as a surfactant in a copper electrowinning process and Bolich, Jr et al teach using guar as a surfactant in a shampoo. Thus, one of ordinary skill in the art would have had a reasonable expectation of successfully using the extracts from the *Quillaja saponaria* Molina tree as taught by Niwase in place of the fluoroaliphatic surfactant taught by Bultman et al.

### ***Conclusion***

6. **THIS ACTION IS MADE FINAL.** Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire THREE MONTHS from the mailing date of this action. In the event a first reply is filed within TWO MONTHS of the mailing date of this final action and the advisory action is not mailed until after the end of the THREE-MONTH shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of




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the advisory action. In no event, however, will the statutory period for reply expire later than SIX MONTHS from the mailing date of this final action.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Harry D. Wilkins, III whose telephone number is 571-272-1251. The examiner can normally be reached on M-F 8:30am-5:00pm.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Roy V. King can be reached on 571-272-1244. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

  
Harry D Wilkins, III  
Primary Examiner  
Art Unit 1742

hdw